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Notes on Carex—X

KENNETH KENT MACKENZIE

CAREX ROSEA SCHK. AND ITS ALLIES

Schkuhr's original illustration of *Carex rosea* in the Riedgräser (*pl. ZZZ, f. 179*) is drawn with his usual care and accuracy. Two culms in mature condition are shown. One has four spikes having respectively (commencing with the lowest) eight, seven, five, and five perigynia; and the other has five spikes having respectively eight, eleven, seven, six, and six perigynia. The detailed illustrations of the perigynia show that the body of the perigynium tapers or is but little contracted into the beak, and also that the perigynia are light green in color and are not conspicuously white-hyaline at the orifice. It is further to be especially noticed that the stigmas are slender and not twisted and that the exerted portion is about one third the length of the perigynium at flowering time.

The plant so illustrated is a slender plant with leaf-blades averaging about 1.5 mm. in width. The lower spikes usually have from five to eight perigynia, but the number varies between three and twelve. The most distinctive features, however, are to be found in the shape of the stigmas, slender and not twisted, and in their light reddish brown color. This plant, the genuine *Carex rosea*, is not the plant usually so treated in the manuals, but is the plant which is the basis of many records of *Carex rosea* var. *radiata*. The only work known to me where the distinctive stigmas are alluded to is Boott's Illustrations of the Genus Carex (2: 81), where the plant under discussion is treated as var. *minor* Boott of *Carex rosea* and briefly described and figured (*pl. 224*). It is a widely distributed species, ranging from Maine and Quebec, westward to North Dakota and southward to Georgia, Alabama, Mississippi and Louisiana. It flowers late in April or in May, is mature late in May or in June, and in July can be found only in very poor condition.

The plant which has usually been taken for *Carex rosea* is a

much stouter plant of a deeper green color. The leaf-blades average nearly 2.5 mm. in width, and the lower spikes usually have from nine to twelve perigynia, although the number varies between six and twenty. The stigmas are short, thickish and twisted and are dark brownish red in color. The perigynium is abruptly contracted into the beak, is deep green in color, and is conspicuously white-hyaline at the orifice. Like *Carex rosea*, this is a widely distributed plant, ranging from Maine to Manitoba and southward to Alabama, Tennessee and Missouri; and like it, it matures in late May or June. For this species, which is apparently nameless, the name *Carex convoluta* is here proposed.

A third plant of much more restricted range remains for consideration. This is a very slender plant, in which the leaf-blades average little more than 1 mm. in width. The perigynia are very small, mostly 2.5–3 mm. in length, and are ascending or but little spreading. Each spike has but two to six perigynia, and the bract of the lowest spike is as conspicuous as the bract in *Carex trisperma*. In fact, the general aspect of the plant is very much like that of *Carex trisperma*. The stigmas are short and twisted, as in *Carex convoluta*, and the perigynium is abruptly contracted into the beak, as in that species. The perigynia, however, are rather lighter green in color, and less conspicuously white-hyaline at the orifice.

This is a later maturing plant than either of the other two. It blooms late in May or in June, and can be found in good condition in July and August. It is Alleghenian in its distribution and I have seen specimens showing a range from Maine and New York southward to North Carolina and Tennessee. It is the plant treated by Dr. Small (Fl. SE. U. S. 218) as *Carex radiata* and also the plant treated by Dewey (Am. Jour. Arts and Sciences, 10: 276) and also by Boott (Ill. Car. 2: 81. pl. 225) as *Carex rosea* var. *radiata*. The name "*radiata*," however, goes back to a plant described by Wahlenberg (Kongl. Vet. Akad. Handl. [II.] 24: 147) under *Carex stellulata*, as β *radiata*, and collected in North America by Rev. Hultgren. As pointed out by Boott (l. c. 81) the description of this plant agrees best with *Carex trisperma* or some species of the *C. stellulata* group. Schkuhr referred it as a synonym to his *Carex rosea* (l. c. 15), and Dewey, as stated above, referred it to

the plant now under discussion. In the absence of opportunity to examine the original specimen, I am not changing the application of the name. Tuckerman's *Carex neglecta* (Enum. Method. 19) is the oldest specific name for the species, but the name "*neglecta*" had previously been used by other authors for other species. It is interesting to note that both Tuckerman and Wahlenberg (if his name is correctly applied) erroneously placed this species among those with the staminate flowers below the pistillate.

The best characters to separate the three species in question may be contrasted as follows:

Stigmas slender, not twisted, elongated, light brownish red; perigynium tapering or but little contracted into beak, inconspicuously white-hyaline at the orifice.	<i>C. rosea</i> .
Stigmas stouter, twisted, short, deep brownish red; perigynium contracted into beak, conspicuously white-hyaline at the orifice.	
Leaf-blades averaging 2.5 mm. wide; spikes usually with nine to twelve perigynia; perigynia 3.25-4.5 mm. long, widely radiating.	<i>C. convoluta</i> .
Leaf-blades averaging little more than 1 mm. wide; spikes usually with two to six perigynia; perigynia 2.5-3 mm. long, more ascending.	<i>C. radiata</i> .

CAREX ROSEA Schk.; Willdenow, in Linnaeus, Sp. Pl. ed. 4, 4:

237. 1805; Riedgr. Nachtr. 15. *pl. zzz, f. 179*. 1806

Carex rosea var. *minor* Boott, Ill. Car. 2: 81. *pl. 224*. 1860.

Carex rosea var. *staminata* Peck; E. C. Howe, Rep. New York State Mus. Nat. Hist. 48: 132. 1895.

Densely cespitose, the culms 2-5 dm. high, slender, 1-1.75 mm. wide at base, aphyllopodic, smooth or slightly serrulate on the angles above, usually exceeding but at times equalled by the leaves, light brownish tinged and fibrillose at base. Leaves with well-developed blades three to six (usually four or five) to a culm, on lower fourth, but not bunched, the blades erect-ascending, 1-2 mm. wide, 3 dm. long or less, light green, flat, strongly minutely serrulate on the margins and on the veins towards the apex, the sheaths tight, not septate-nodulose. Spikes four to eight, androgynous, in an elongate terminal head, 5 cm. long or less, 5-8 mm. wide, the lower three to five separate, the upper three or four aggregated. Staminate flowers apical, inconspicuous, with the four to twelve ascending or at maturity widely radiating perigynia below. Bracts bristle-form, that of the lowest spike conspicuous, 10 cm. long or less, those of the upper spikes much smaller and often rudimentary. Scales triangular-ovate, greenish hyaline,

thin, the midrib not strong, green, the scales obtusish, about width of and half length of body of perigynium. Perigynia soon widely spreading, plano-convex with slightly raised margins ventrally, light green, nerveless or obscurely nerved, roughened on margins above, 3-3.5 mm. long, 1.5 mm. wide, spongy and rounded at base, tapering or somewhat contracted into a bidentate beak, one fourth length of body, inconspicuously hyaline between teeth. Achenes lenticular, broadly obovate, filling perigynia, 1.75 mm. long, 1.25 mm. wide. Style enlarged at base, deciduous. Stigmas two, elongate, slender, usually not twisted, light reddish brown.

SPECIMENS EXAMINED

QUEBEC: Montmorency Falls, *Macoun* 67755, June 28, 1905 (N. Y.).

MAINE: Veazie, *Knight*, June 10, 1905 (K. M.).

NEW HAMPSHIRE: Orange, *Briggs*, 1900 (N. Y.).

MASSACHUSETTS: Chapman herbarium (C.).

NEW YORK: Staten Island, *Britton*, May 25, 1889 (C., P.); New York City, *Morong*, May 28, 1893 (C.); Penn Yan, *Sartwell* 25 (C.); Oneida County, *Vasey* (C., P.); Oneida, *Maxon* 4552, July 8, 1909 (N. Y., K. M.); Cooperstown Junction, *Peck*, June, var. *staminata* Peck; Apalachin, *Fenno* 491, May 30, 1898 (N. Y.).

NEW JERSEY: Closter, Bergen County, *Mackenzie* 5427, June 8, 1913 (K. M.); Summit, Union County, *Mackenzie* 161, May 30, 1903 (K. M.); Eagle Rock, Essex County, *Mackenzie* 143, May 17, 1903 (K. M.); Berkeley Heights, Union County, *Mackenzie* 2031, May 30, 1906 (K. M.); Landisville, *Gross*, June, 1878 (P.); Mickleton, *Brinton*, June 15, 1890 (P.); Salem County, *Heritage*, May 28, 1892 (P.); New Egypt, *Grove*, May 21, 1905 (P.); Swedesboro, *Lippencott*, May 20, 1892, June 7, 1893 (P.); Kinkora, *Long* 12245, May 27, 1915 (P.); Vincentown, *Long* 12214, May 25, 1915 (P.); Edgewater Park, *Long* 12018, May 18, 1915 (P.).

PENNSYLVANIA: Easton, *Porter*, June 3, 1890 (C.); New Texas, *Carter*, May 20, 1909 (N. Y.); York Furnace, *Brinton*, May 30, 1892 (P.); Glenolden, *Keller*, June 9, 1895 (P.); Delaware County, *Smith*, May 30, 1898 (P.); Bartram's Garden, *Crawford*, June 3, 1892 (P.); Byberry, *Martindale*, June, 1863 (P.); Haverford, *Smith*, June 11, 1897 (P.); Penn Valley, *Crawford*, June 1, 1899 (P.); Germantown, *Wister*, June 17, 1862 (P.); Philadelphia

County, *Van Pelt*, June 10, 1908 (P.); West Park, *MacElwee*, May 27, 1892 (P.); Wawa, *MacElwee*, June 5, 1892 (P.); Bethlehem, *Schweinitz* (P.); Sellersville, *Fretz*, June, 1883 (P.); Lafayette, *Saunders*, May 28, 1898 (P.); Ryets, *Long*, June 15, 1909 (P.); Penllyn, *Long* 915, June 12, 1909 (P.); Fort Washington, *Long* 913, 914, June 11, 1909 (P.); Bear Hill, *Pennell* 3956, June 28, 1912 (P.); Brookfield, *Pennell* 3688, June 12, 1912 (P.); Bartram's Garden, *Crawford*, June 3, 1892 (P.); Wawa, *Pennell* 2083, 2091, May, 1909 (P.); Phoenixville, *Brinton*, May 25, 1890 (P.); Mt. Bethel, *Bartram*, May 30, 1908 (P.); Slatington, *Bachman* 2408, June 7, 1912 (P.); Mountainville, *Pretz* 5325, 5335, 5336, May 18, 1913 (P.); Allentown, *Pretz* 5491, June 17, 1913 (P.); Hosensack, *Pretz* 5407, May 30, 1913 (P.); Jordan, *Pretz* 5512, 5532, 5542, June 21, 1913 (P.); Bletzel, *Pretz* 1775, May 11, 1909 (P.); Allentown, *Pretz* 380, June 8, 1907 (P.); Mt. Cuba, *Keller*, May 30, 1895 (P.); Lowhill, *Pretz* 4659, June 23, 1912 (P.); Lanark, *Pretz* 4475, June 1, 1912 (P.); Henningville, *Pretz* 6532, May 30, 1914 (P.); Emaus, *Pretz* 6595, 6611, June, 1914 (P.); Bethlehem, *Schweinitz* (P.); Long Pond, *Crawford*, July 3, 1893 (P.); Fulton County, *Stone* 242, June 6, 1905 (P.).

DELAWARE. Belleview, *Commons*, June 2, 1897 (P.); Greenbank, *Commons*, June 4, 1882 (P.).

DISTRICT OF COLUMBIA: *House* 792, May 23, 1905 (N. Y.); *Steele*, May 21, 1898 (K. M.).

NORTH CAROLINA: Chapel Hill, *Ashe*, April (N. Y.); Salem, *Schweinitz* (P.).

SOUTH CAROLINA: Oconee County, *House* 2131, May 13, 1906 (N. Y.).

GEORGIA: Bear Creek, Whitfield County, *Harper* 248, July 18, 1900 (N. Y.); Choakee Creek, Sumter County, *Harper* 1116, July 25, 1901 (N. Y.).

ALABAMA: Auburn, *Earle*, June 2, 1901 (N. Y.).

MISSISSIPPI: Starkville, *Tracy*, April 15, 1888 (C.).

TENNESSEE: Knoxville, *Ruth* 927, June, 1895 (N. Y.).

KENTUCKY: Lexington, *Short*, 1836 (C.).

OHIO: Akron, *Foltz*, May 19, 1889 (N. Y.); Strongsville, *Watson*, May 10, 1896 (K. M.).

ONTARIO: Walpole Island, *Dodge*, May 24, 1910 (K. M.).

MICHIGAN: Agricultural College, *Wheeler*, May 2, 1895 (C.); Mayville, *Dodge*, June 16, 1910 (K. M.); Port Huron, *Dodge*, May and June, 1911, and June, 1915 (K. M.); Long Lake, Lapeer County, *Dodge*, June 2, 1911 (K. M.); Detroit, *Billington*, 1915 (K. M.).

INDIANA: *Clapp* (C.); Helmsburg, *Deam* 11168, June 16 1912 (N. Y.); Vermilion County, *Deam* 5791, May 8, 1910 (K. M.); Decatur County, *Mrs. Deam* 8148, May 13, 1911 (K. M.); Brown County, *Deam* 6406, 11168, May 21, 1910, June 16, 1912 (K. M.); Greene County, *Deam* 10723, May 26, 1912 (K. M.); Ripley County, *Deam* 10563, May 19, 1912 (K. M.); Allen County, *Deam* 14244, May 31, 1914 (K. M.); Wells County, *Deam* 14175, May 17, 1914 (K. M.); Marion County, *Deam* 8524, 12905, May 30, 1911, May 22, 1913 (K. M.); Posey County, *Deam* 8347, May 24, 1911 (K. M.); Martin County, *Deam* 12845, May 21, 1913 (K. M.).

ILLINOIS: Cook County, *Chase*, May 31, 1897 (P.); Decatur, *Clokey*, June 2, 1899 (K. M.); Macon County, *Clokey*, June 4, 1915 (K. M.); "Illinois," *Vasey* (P.).

WISCONSIN: Milwaukee, *Hasse*, June (N. Y.).

MINNESOTA: Chaska, *Ballard*, June, 1891 (C.).

NORTH DAKOTA: Fargo, *Waldron*, June 2, 1900 (N. Y.); Towner, McHenry County, *Lunell*, June 12, 1913 (K. M.).

MISSOURI: Independence, *Bush* 717, June 2, 1895 (C.); St. Louis, *Riehl* 394, June, 1843 (C.); Butler County, *Bush* 2659, May 1, 1905 (K. M., N. Y.); Courtney, *Bush* 6751, May 31, 1912 (K. M., N. Y.); St. Louis, *Glatfelter*, May 15, 1894 (K. M.); Adams, *Mackenzie*, May 23, 1897 (K. M.); Clay County, *Mackenzie* 820, April 27, 1895 (K. M.); Sibley, *Mackenzie* 66, May 29, 1898 (K. M.); Thornton, *Mackenzie* 121, June 5, 1898 (K. M.); Courtney, *Bush* 6825, June 18, 1912 (K. M.); Buckner, *Bush* 6785, June 5, 1912 (K. M.); Cockrell, *Bush* 6717, May 21, 1912 (N. Y., K. M.).

ARKANSAS: Moark, *Bush* 2575, May 1, 1905 (K. M.).

LOUISIANA: *Leavenworth* (C.).

***Carex convoluta* sp. nov.**

"*Carex rosea* Schk." Boott, Ill. Car. 2: 81 pl. 223. 1860.

Carex rosea var. *pusilla* Peck; E. C. Howe, Rep. New York State Mus. Nat. Hist. 48. 132. 1895.

Densely cespitose, the culms 3–6 dm. high, strict, 2.5 mm. wide at base, aphyllopodic, roughened above, equalling leaves, light brownish tinged and fibrillose at base. Leaves with well-developed blades four to six to a fertile culm, on lower fourth, but not bunched, the sheaths tight, somewhat septate-nodulose, the blades flat, 1.5–3 mm. wide, deep green. Spikes four to seven, androgynous, the upper closely contiguous, the lower strongly separate, with six to twenty perigynia, the staminate flowers few and inconspicuous; lowest bract setaceous, prolonged and often overtopping the culm, the others less developed. Scales broadly ovate, obtuse, thin, white-hyaline with green midvein, about width of and half length of body of perigynium. Perigynia soon widely spreading, plano-convex with slightly raised margins ventrally, deep green, nerveless or obscurely nerved, roughened on margins above, 3.25–4.5 mm. long, 1.75 mm. wide, spongy and rounding at base, abruptly contracted into a bidentate beak, one third length of body, conspicuously hyaline between teeth. Achenes lenticular, orbicular-obovate, filling perigynia, 2 mm. long, 1.6 mm. wide. Style enlarged at base, deciduous. Stigmas two, short, thickish, twisted, dark brown.

My No. 2088 collected June 10, 1906, at Budd's Lake, New Jersey, and preserved in my herbarium may be taken as the type.

SPECIMENS EXAMINED

MAINE: Veazie, *Knight*, June 10, 1905 (K. M.).

NEW HAMPSHIRE: *Blake* (C.).

MASSACHUSETTS: Great Barrington, *Brown*, June 3, 1894 (C., P.); Cambridge, *Fernald*, May 30, 1891 (C.); Dedham, *Forbes*, June 27, 1903 (K. M.); "Mass." *Dewey* (P.).

RHODE ISLAND: North Kingstown, May, 1872 (N. Y.); *Olney*, June (N. Y., P.); Lime Rock, *Batchelder*, June 4, 1913 (P.).

CONNECTICUT: Trumbull, *Eames*, May 20, 1903 (K. M.).

NEW YORK: *Torrey* (C.); Penn Yan, *Sartwell* 24 (C.); High Bridge, *Bicknell*, July 5, 1890 (C.); Lake George, *Kemp*, June 1901 (N. Y.); Binghamton, *Clute*, 1895 (N. Y.); Apalachin, *Fenno* 492, 500, May 1898 (N. Y.); Portage, *Peck*, var. *pusilla* Peck (N. Y.).

NEW JERSEY: Budd's Lake, *Mackenzie* 2088, June 10, 1906 (K. M.); Cranberry Lake, *Mackenzie* 732, 1295, June 12, 1904, May 30, 1905 (K. M.); Mickleton, *Heritage*, May 18, 1892 (P.); Mickleton, *Brinton*, June 15, 1890 (P.); Glassboro, *Long* 3419,

May 16, 1910 (P.); Farmingdale, *Long & Brown* 3702, May 28, 1910 (P.); Bordentown, *Long* 12468, June 11, 1915 (P.); Mullica Hill, *Long* 12390, June 4, 1915 (P.); Sharptown, *Long* 12354, June 1, 1915 (P.).

PENNSYLVANIA: York County, *Glatfelter*, June, 1895 (K. M.); Llewellyn Mills, *Pennell* 5065, July 16, 1913 (P.); Byberry, *Martindale*, June, 1865 (P.); Rock Hill, *Keller*, June 19, 1892 (P.); Lafayette, *Keller*, June 2, 1895 (P.); Spring Mount, *Van Pelt*, June 12, 1908 (P.); Gwynedd, *MacElwee* 2322, June 8, 1902 (P.); Green Lane, *Allebach*, May, 1911 (P.); Wernersville, *Lightfoot*, July 6, 1892 (P.); Easton, *Porter*, May 28, 1895 (P.); Rock Hill, *Saunders*, May 30, 1898 (P.); Chestnut Hill, *Porter*, June 14, 1898 (P.); Lancaster, *Long*, June 22, 1909 (P.); Revere, *Long*, July 6, 1909 (P.); Churchtown, *Long*, June 17, 1909 (P.); Bustleton, *Long*, June 15, 1909 (P.); Willow Grove, *Long* 3778, June 1, 1910 (P.); Chester Heights, *Pennell* 5045, June 21, 1913 (P.); Montgomery County, *Long* 8274, May 18, 1913 (P.); Limeport, *Pretz* 5646, 5709, June and July, 1913 (P.); Locust Valley, *Pretz* 5675, July 4, 1913 (P.); Mill Hill, *Pretz* 5431, May 30, 1913 (P.); Mountainville, *Pretz* 1855, 5342, 6650, 6776, May 29, 1909, May 18, 1913, June, 1914 (P.); Jordan, *Pretz* 5545, June 21, 1913 (P.); Jordan Creek, *Pretz* 5566, June 22, 1913 (P.); Vera Cruz, *Pretz* 3472a, 5621, June 4, 1911, June 29, 1913 (P.); Hosensack, *Pretz* 4828B, July 21, 1912 (P.); Treichler, *Pretz* 4583, June 22, 1912 (P.); Dillinger, *Pretz* 3487, June 4, 1911 (P.); Emaus, *Pretz* 6583, June 6, 1914 (P.); Spring Valley, *Pretz* 4535, June 9, 1912 (P.); Fleetwood, *Long* 12603, June 27, 1915 (P.); Laurel Hill, Somerset County, *Brown & Saunders*, May 30, 1899 (P.); Tannersville, *Brown*, July 4, 1901 (P.); Easton, *Porter*, 1891 and 1895 (C.); Conewago, *Small*, May 28, 1889 (C.).

DELAWARE: Mt. Cuba, *Brinton*, June 22, 1890 (P.); Greenbank, *Commons*, June 17, 1882 (P.).

DISTRICT OF COLUMBIA: *Steele*, May 15, 1896 (K. M.); *Williams*, May 30, 1899 (K. M.).

VIRGINIA: Smyth County, *Britton & others*, May, 1892 (C., P.); June 1, 1892 (C., K. M.); Wytheville, *Shriver*, 1874 (P.).

NORTH CAROLINA: *Hunter* (C.); Biltmore, *Biltmore Herbarium* 263a, June 3, 1896 (N. Y.).

SOUTH CAROLINA: Clemson, *House* 3389, May 22, 1907 (N. Y.).

ALABAMA: *Buckley*, May, 1841 (C.); Point Clear, Baldwin County, *Mohr*, April 29, 1879 (N. Y.).

TENNESSEE: Franklin County, *Eggert*, June 8, 1897 (N. Y.); Prospect, *Gattinger*, May 18, 1883 (N. Y.).

KENTUCKY: *Short*, in 1842 (C., N. Y.); Lexington, *Peter*, May, 1834 (P.).

OHIO: *Frank* 55, 1835 (C., N. Y.).

ONTARIO: Guelph, *Klugh*, July 9, 1905 (K. M.); Ontario, *J. M. Macoun*, June 12, 1891 (C.).

MICHIGAN: Cassapolis, *Wheeler* 22, June 2, 1890 (C.); Agricultural College, *Wheeler*, May 6, 1895 (C.); Olivet, *McClatchie*, June 3, 1887 (N. Y.); Flint, *Clarke* (P.); Tuscola County, *Dodge*, June 20, 1910 (K. M.); Mackinack County, *Dodge*, July 1, 1912 (K. M.); Port Huron, *Dodge*, June 6, 1911 (K. M.); Lapeer County, *Dodge*, June 2, 1911 (K. M.).

INDIANA: Greencastle, *Underwood*, June, 1893 (N. Y.); Laporte County, *Deam* 8745, June 17, 1911 (K. M.); Noble County, *Deam* 6786, June 20, 1910 (K. M.); Putnam County, *Deam* 6506 (K. M.); Clarke County, *Deam* 6476, May 25, 1910 (K. M.); Vermilion County, *Deam* 5841, 5841a, 5842, May 8, 1910 (K. M.); Wells County, *Deam* 14181, May 17, 1914 (K. M.); Ripley County, *Deam* 10588, 10606, May 19, 1912 (K. M.); Hendricks County, *Deam* 10885, June 1, 1912 (K. M.); Elkhart County, *Deam* 10998, June 4, 1912 (K. M.); Howard County, *Deam* 5913, 5950, May 15, 1910 (K. M.); Brown County, *Deam* 6560, June 5, 1910 (K. M.); Wayne County, *Deam* 13146, June 4, 1913 (K. M.); Jackson County, *Deam* 12719, May 11, 1913 (K. M.); Johnson County, *Deam* 11082, June 8, 1912 (K. M.); Hamilton County, *Mrs. Deam* 10540, May 19, 1912 (K. M.); Lagrange County, *Deam* 15945, June 5, 1915 (K. M.).

WISCONSIN: Milwaukee, *Hasse*, June 1, 1880 (N. Y.); Madison, *Hale* (P.).

ILLINOIS: Mt. Carmel, *Schneck*, May 15, 1880 (C.); Peoria, *McDonald*, June, 1903 (N. Y.); LaSalle County, *Greenman & others.* 59, June, 1909 (N. Y.).

MINNESOTA: Center City, *Taylor*, June, 1892 (C.).

IOWA: Ames, *Ball* 15, June 4, 1898 (N. Y.); Charles City,

Arthur, May 16, 1875 (N. Y.); Fayette, *Fink*, June, 1895 (N. Y.); Iowa Lake, *Cratty*, June 8, 1881 (N. Y.); Armstrong, *Cratty*, June 22, 1898 (N. Y.); Marshalltown, *Pammel* 384, May 1, 1897 (K. M.).

MISSOURI: Monteer, *Bush* 4673, 4689, May 24, 1907 (K. M.); Swan, *Bush* 4513, 4513a, May 17, 1907 (K. M.); Martin City, *Mackenzie*, June 13, 1900 (K. M.); Monteer, *Bush* 2802, 2870, May, 1905 (K. M.); Burge Park, *Mackenzie*, May 16, 1896 (K. M.); Courtney, *Mackenzie*, May 23, 1896 (K. M.); Courtney, *Bush*, May 18, 1891 (C., P.), and 6810, June 10, 1912 (K. M., N. Y.); Swan, *Bush* 2914, May 19, 1905 (K. M., N. Y.).

KANSAS: Leavenworth County, *Hitchcock* 867, 1896 (N. Y.); Quindaro, *Mackenzie*, May 30, 1897 (K. M.).

NEBRASKA: Ponca, *Clements* 2557, June 15, 1893 (C.); Lincoln, *Webber*, June, 1886 (C.); Ashland, *Williams*, 1890 (K. M.).

SOUTH DAKOTA: Bigstone, *Williams*, June, 1895 (K. M.).

MANITOBA: Portage la Prairie, *Macoun* 72775, June 9, 1906 (N. Y.).

CAREX RADIATA (Wahl.) Small, Fl. SE. U. S. 218. 1903

Carex stellulata β . *C. radiata* Wahl. Kongl. Vet. Akad. Handl. (II.)

24: 147. 1803.

Carex rosea β . *radiata* Dewey, Am. Jour. Sci. 10: 276. 1826.

Carex neglecta Tuckerman, Enum. Method. 19. 1843.

"*Carex disperma* Dewey" Kunze, Riedgr. Suppl. 131. pl. 33. 1840-50.

Densely cespitose, the culms 2.5-5 dm. high, very slender, 1.5 mm. thick at base, weak, aphyllopodic, roughened above, equalling leaves, light brownish tinged and fibrillose at base. Leaves with well-developed blades four to six to a fertile culm on lower fourth, but not bunched, the sheaths tight, not septate-nodulose, the blades flat, 1-1.75 mm. wide, light green. Spikes mostly four, androgynous, the two upper closely contiguous, the lower strongly separate, with two to six perigynia, the staminate flowers few and inconspicuous; lowest bract setaceous, erect, prolonged and often overtopping the culm; the others less developed. Scales ovate, obtuse, thin, white-hyaline with green midvein, about width of but shorter than body of perigynium. Perigynia at first erect, at maturity more or less strongly spreading, plano-convex with slightly raised margins ventrally, deep green, nerveless or obscurely nerved, roughened on margins above,

2.25–3 mm. long, 1.5 mm. wide, somewhat spongy and rounding at base, abruptly contracted into a bidentate beak, half length of body, hyaline between teeth. Achenes lenticular, orbicular-obovate, filling perigynia, 1.5 mm. long, nearly as wide. Style enlarged at base, deciduous. Stigmas two, short, twisted, dark reddish brown.

SPECIMENS EXAMINED

MAINE: Orono, *Briggs*, June, 1892 (N. Y.); Orono, *Fernald*, July 1, 1891 (C.).

NEW HAMPSHIRE: East Andover, *Briggs*, 1900 (N. Y.).

VERMONT: Middlebury, *Brainerd*, June 20, 1880 (P.).

MASSACHUSETTS: Plainfield, *Porter* (C.); Ashfield, *Forbes*, August 19, 1904 (K. M.); North Adams, *Fernald & Long* 9017, June 23, 1913 (P.); "Mass." *Nuttall* (P.).

RHODE ISLAND: *Olney* (N. Y., K. M.).

CONNECTICUT: *Barratt* (N. Y.); West Goshen, *Underwood*, June 29, 1891 (C.).

NEW YORK: Oneida County, *Vasey* (N. Y., K. M., P.); Hunter, Catskill Mountains, *Britton*, August 1, 1898 (N. Y.); Tannersville, *Vail*, July 16, 1892 (C.); Preston, *Coville*, June 28, 1886 (K. M.).

NEW JERSEY: Water Gap, *Mackenzie* 5306, September 28, 1912 (K. M.); Moe, Passaic County, *Mackenzie* 6005, July 5, 1914 (K. M.).

PENNSYLVANIA: Pike County, *Brown & Saunders*, July 9, 1899 (P.); Nockamixon, *MacElwee*, May 28, 1893 (P.); Rockdale, *Krout*, June, 1877 (P.); New Jerusalem Church, Lehigh County, *Hamm* 839, August 14, 1911 (P.); Rockdale, *Van Pelt*, July 25, 1909 (P.); Hoffman, *Pretz* 7752, August 8, 1915 (P.); Rockdale, *Pretz* 2019, July 25, 1909 (P.); Bethlehem, *Schweinitz* (P.); Tobyhanna, *Brown*, July 2–4, 1893 (P.); Ararat, Susquehanna County, *Saunders*, July 8–20, 1900 (P.).

VIRGINIA: Peaks of Otter, *Curtiss*, June 28, 1871 (N. Y.), *Brown & others*, May and June, 1890 (C., P.); Smyth County, *Britton & others*, June, 1892 (C.); Grayson County, *Britton & others*, June 15, 1892 (C., K. M.); Mountain Lake, *Britton & others*, June 1, 1890 (C.); Pond Mountain, *Small*, June 11, 1892 (C.); Luray, *Steele*, August 11, 1901 (N. Y.).

KENTUCKY: Big Black Mountain, Harlan County, *Kearney* 156, August, 1893 (C.).

TENNESSEE: Thunderhead Mountain, 6711 ft. alt., *Ruth* 928, July, 1894 (N. Y.), and 30, June, 1894 (K. M.).

NORTH CAROLINA: Mt. Mitchell, *Biltmore Herbarium* 206b, June 18, 1898 (N. Y.); Craggy Mountain, *Biltmore Herbarium* 206a, July 9, 1897 (N. Y.); Macon County, *Buckley* (C.); Swain County, *Beardsley & others*, July, 1891 (C.); Watauga County, *Small & Heller* 265, June 24, 1891 (C., P.); Mt. Mitchell, *Biltmore Herbarium* 4974c, June 20, 1898 (N. Y.).